

DAO (AUTOCAD) (90 PERIODS)

CHAPTER 1 INTRODUCTION TO AUTOCAD FEATURES

Learning objectives

After completing this chapter, the student will be able to:

- Describe the AutoCAD screen layout and user interface.
- Describe the function of dialog boxes.
- Use the keyboard and an input device to select commands, enter text, and pick locations on the screen.
- Define the use of function, and shortcut keys.

Contents

- 1.1 Starting AutoCAD
 - 1.1.1 AutoCAD 2009 – 2010 Icon.
 - 1.1.2 Start-programs menu- AutoCAD 2009.
 - 1.1.3 Workspace, switching:
 - 1.1.3.1 2D Drafting and Annotation.
 - 1.1.3.2 AutoCAD Classic.
- 1.2 The AutoCAD Graphics Windows.
 - 1.2.1 The standard AutoCAD graphics windows.
 - 1.2.1.1 Menu bar.
 - 1.2.1.2 Floating toolbar.
 - 1.2.1.3 Coordinate display.
 - 1.2.1.4 Standard toolbar.
 - 1.2.2 Command Exit and application.
- 1.3 Selecting AutoCAD commands.
 - 1.3.1 Using the command line.

CHAPTER 2

STARTING AND SETTING UP DRAWING

Learning Objectives

After completing this chapter, the student will be able to:

- Start a drawing from scratch.
- Use the units and limits commands to change drawing settings.
- Open an existing drawing.

Contents

2.1 Starting a New Drawing:

- 2.1.1 Open a drawing.
- 2.1.2 Start from scratch.

2.2 Using the Quick setup wizard.

- 2.2.1 Setting units of measure:
 - 2.2.1.1 Decimal.
- 2.2.2 Setting the drawing Area.
 - 2.2.2.1 The Model space.

2.3 Using the Advanced setup wizard.

- 2.3.1 Units.
- 2.3.2 Angle.
- 2.3.3 Angle measure.

2.4 Changing Drawing settings

- 2.4.1 Changing Units: Format →limits or command : Limits.

2.5 Opening an Existing Drawing.

2.6 Tools: Drafting Settings:

- 2.6.1 Snap and Grid Adjusting.
- 2.6.2 Snap type (Rectangular and Isometric)

CHAPTER 3

DRAWING LINES, ERASING OBJECTS, USING LAYERS, AND MAKING PRINTS

Learning objectives

After completing this chapter, the student will be able to:

- Use a variety of line types to construct an object.
- Use the Ortho mode and polar tracking.
- Use direct distance entry.
- Make revisions to objects using the ERASE command and its options.
- Remove and add objects to the selection set; Redraw, Oops, Undo.
- Draw objects on separate layers using the LAYER command.

Use the Properties window to change layers, colors, line types, and line weights.

Contents

3.1 Drawing lines with AutoCAD.

3.1.1 Point entry methods.

3.1.1.1 Using absolute coordinates.

3.1.1.2 Using relative coordinates.

3.1.1.3 Using polar coordinates.

3.1.1.4 Picking points using the screen cursor.

3.1.2 Drawing tin ortho mode.

3.1.3 Using direct distance entry.

3.1.4 Using snap and Grid in drawing lines.

3.2 Introduction to editing.

3.2.1 Using the erase command.

3.2.1.1 Making a single selection automatically.

3.2.1.2 Using the last selection object.

3.2.1.3 Using the window selection option from left to right.

3.2.1.4 Using the crossing selection option from right to left.

3.2.2 Using the oops command.

3.2.3 Using the U command.

3.2.4 Using the previous selection.

3.2.5 Selecting all objects in a drawing.

3.3 An introduction to layers.

3.4 Introduction to the layer command.

3.4.1 Creating layers.

3.4.2 Deleting layers.

3.4.3 Setting the current layer.

3.4.4 Viewing the status of layers.

3.4.4.1 Changing the layer name.

3.4.4.2 Tuning layers on and off.

3.4.4.3 Thawing and freezing layers.

3.4.4.4 Unlocked and locked layers.

- 3.4.4.5 Layer color.
 - 3.4.4.6 Layer line type.
 - 3.4.4.7 Layer line weight.
 - 3.4.4.8 Layer plot styles.
 - 3.4.4.9 Layer plot / no plot.
- 3.4.5 Working with layers.
 - 3.4.5.1 New layer.
 - 3.4.5.2 Select all.
 - 3.4.5.3 Clear all.
 - 3.4.5.4 Select all but current.
 - 3.4.5.5 Invert selection.
- 3.4.6 Setting the layer color.
- 3.4.7 Setting the layer line type.
 - 3.4.7.1 AutoCAD line types.
 - 3.4.7.2 Changing line types assignments.
 - 3.4.7.3 Managing line types.
 - 3.4.7.4 Changing line weight assignments.
 - 3.4.7.5 Setting the current line weight.
 - 3.4.7.5.1 Line weights.
 - 3.4.7.5.2 Display line weight.
 - 3.4.7.5.3 Adjust display scale.
 - 3.4.7.5.4 Current line weight.
- 3.4.8 Quickly setting a layer current.
- 3.4.9 Making the layer of an existing object current.
- 3.7 Changing object properties.

CHAPTER 4

DRAWING BASIC SHAPES

Learning objectives

After completing this chapter, the student will be able to:

- Draw circles using the circle command.
- Draw arc using the ARC command options.

Contents

4.1 Drawing circles.

- 4.1.1 Drawing a circle by radius.
- 4.1.2 Drawing a circle by diameter.
- 4.1.3 Drawing a two-point circle.
- 4.1.4 Drawing a three-point circle.
- 4.1.5 Drawing a circle tangent to two objects.
- 4.1.6 Drawing a circle tangent to three objects.

4.2 Drawing arcs.

- 4.2.1 Drawing a three-point arc.
- 4.2.2 Drawing arcs using the start, center, end option.
- 4.2.3 Drawing arcs using the start, center, angle option.
- 4.2.4 Drawing arcs using the start, center, length option.
- 4.2.5 Drawing arcs using the start, end, angle option.
- 4.2.6 Drawing arcs using the start, end, radius option.
- 4.2.7 Drawing arcs using the start, end, direction option.
- 4.2.8 Drawing arcs using the center, start, end option.
- 4.2.9 Drawing arcs using the center, start, angle option.
- 4.2.10 Drawing arcs using the center, start, length option.

4.3 Drawing ellipses.

- 4.3.1 Drawing an ellipse using the axis, endpoint option.
- 4.3.1 Drawing an ellipse using the center option.
- 4.3.1 Drawing elliptical arcs.

4.4 Drawing regular polygons.

- 4.4.1 Setting the number of polygon sides.

4.5 Drawing rectangles.

- 4.5.1 Drawing rectangle with line width.
- 4.5.2 Drawing chamfered rectangles.
- 4.5.3 Drawing filleted rectangles.

4.6 Drawing problems: exercises.

CHAPTER 5

OBJECT SNAP, GEOMETRIC CONSTRUCTIONS, AND MULTIVIEW DRAWINGS

Learning objectives

After completing this chapter, the student will be able to:

- Use object snap mode command options to create precision drawing.
- Use the offset command to draw parallel lines and curves.
- Divide existing objects into equal distances using the divide command.
- Use the measure command to set designated increments on an existing object.
- Use construction lines to assist in drawing multiviews and auxiliary views.

Contents

- 5.1 Object snap modes.
 - 5.1.1 Endpoint object snap.
 - 5.1.2 Midpoint object snap.
 - 5.1.3 Center object snap.
 - 5.1.4 Quadrant object snap.
 - 5.1.5 Intersection object snap.
 - 5.1.6 Apparent intersection object snap.
 - 5.1.7 Extension object snap.
 - 5.1.8 Perpendicular object snap.
 - 5.1.9 Tangent object snap.
 - 5.1.10 Parallel object snap.
 - 5.1.11 Node object snap.
 - 5.1.12 Nearest object snap.
- 5.2 Setting running object snaps.
 - 5.2.1 Toggling, disabling and overriding running object snap.
 - 5.2.2 Using multiple object snap modes.
- 5.3 Drawing parallel lines and curves.
 - 5.3.1 Command: O or OFFSET.
- 5.4 Drawing points.
- 5.5 Dividing an object.
 - 5.5.1 Command: Divide or divide.
 - 5.5.2 Divide by block.
- 5.6 Dividing objects at specified distances.
 - 5.6.1 Setting point style.
- 5.7 measure command to divide the object into specific distance.
- 5.8 Drawing construction lines.
 - 5.8.1 Using the xline command.
 - 5.8.1.1 From point.
 - 5.8.1.2 Hor (H).
 - 5.8.1.3 Ver (V).
 - 5.8.2 Using the ray command.
- 5.9 Editing construction lines and rays.

CHAPTER 6

BASIC EDITING COMMANDS

Learning objectives

After completing this chapter, the student will be able to:

- Draw chamfers and angled corners with the chamfer command.
- Use the fillet command to draw filets, rounds, and other rounded corners.
- Remove a portion of a line, circle, or arc using the break command.
- Use the trim and extend commands to edit an object.
- Make single and multiple copies of existing objects using the copy command.
- Draw a mirror image of an object.
- Change the angular position of an object using the rotate command.
- The align command to move and rotate an object simultaneously.
- Change the size of an object using the scale command.
- Modify the length and height using the stretch and lengthen commands

Contents

- 6.1 Drawing chamfers.
 - 6.1.1 Distance.
 - 6.1.2 Setting the chamfer distance.
- 6.2 Drawing rounded corners.
 - 6.2.1 Command F or fillet.
 - 6.2.2 Setting the fillet trim mode.
 - 6.2.3 Filleting parallel lines.
- 6.3 Command br or break.
- 6.4 Trimming section of lines, circles and arcs.
 - 6.4.1 Command TR or Trim.
- 6.5 Extending lines.
 - 6.5.1 Command: ex or extend.
- 6.6 Moving an object.
 - 6.6.1 Command M or move.
 - 6.6.2 Using the first point as displacement.
- 6.7 Copying objects.
 - 6.7.1 Command Co or copy
 - 6.7.2 Making multiple copies.
- 6.8 Drawing a mirror image of an object.
 - 6.8.1 Selecting the mirror line.
 - 6.8.2 Command Mi or mirror.
 - 6.8.3 Mirroring text.
- 6.9 Rotating existing objects.
 - 6.9.1 Command ro or rotate.
- 6.10 Moving and rotating an object at the same time.
 - 6.10.1 Command AL or Align.
- 6.11 Changing the size of an object.

6.11.1 Command SC or scale.

6.12 Stretching an object.

6.12.1 Command S or stretch.

6.12.2 Using the displacement option.

CHAPTER 7

SAVING DRAWINGS

Learning objectives

After completing this chapter, the student will be able to:

- Saving a drawing under a different name.
- Explain the difference between the QSAVE, SAVEAS, and SAVE commands and the automatic save.

Contents

7.1 Saving drawings.

7.1.1 Naming drawings.

7.1.2 Using the qsave command.

7.1.3 Using the save as command.

7.1.4 Saving your work automatically.

7.1.5 Where to save the drawing.

7.1.6 Saving AutoCAD drawings as older releases.

7.2 Closing a drawing.

7.3 Existing AutoCAD.